19 SCHEDULE OF MITIGATION

19.1 Introduction

This Chapter of the Environmental Impact Assessment Report (EIA Report) provides a schedule of mitigation measures that have been proposed with the EIA Report to prevent, reduce or offset the effects associated with the Ladyfield Renewable Energy Park (the Development).

Mitigation measures have been integral to the design evolution of the Development as outlined in Chapter 3 - Site Selection and Design. The overall aim of the design strategy was to create a wind farm with a cohesive design that relates to the surrounding landscape whilst taking account of the environmental characteristics of the area in which the Development is located (the Site), for example priority habitats and key ornithological species, cultural heritage features and hydrological resources.

Table 19.1 presents a schedule of mitigation measures for the Development listed according to the relevant environmental topic, which would be applied during the construction and operation of the Development.

19.2 Schedule Of Mitigation

Table 19.1: Schedule of Mitigation

Environmental Subject Area	Mitigation Proposed	Timing
Chapter 2 –Development Description	**Noise Management Plan (NMP)** Embedded commitment to liaise directly with local residents and the wider community via a Community Liaison Group to manage construction noise. It is proposed that construction activities be limited to between 07:00 and 19:00 Monday to Saturday, with no construction work expected on Sundays or Bank Holidays. Any works out-with these hours will need to be approved in writing by the Council.	Construction
	Construction Environmental Management Plan (CEMP) Prior to construction, a detailed CEMP would be prepared by the Principal Contractor that builds upon the oCEMP provided in Technical Appendix 11.4 and shall collate all measures required during construction to avoid and minimise environmental harm including guidance and best practice. The CEMP shall include, but not be limited to: • Site induction and training; • Working hours; • Enabling works; • Surface water and drainage management; • Waste management; • Wastewater and water supply monitoring and control; • Oil and chemical delivery and storage; • Pollution Prevention Plan (PPP), including requirements for water quality monitoring; • Ecological protection measures; • Construction noise management; • Cultural heritage protection measures; • Handling of excavated materials; • Peat Management Plan (PMP); • Reinstatement and restoration; • Traffic management; • Environment incident response and reporting; and • Use and extent of the borrow pit. To ensure that the mitigation and management measures detailed within this Environmental Impact Assessment (EIA) Report are carried out, construction personnel and contractors will be required to adhere to the CEMP which will form an overarching document for all construction site management requirements.	Pre-construction

Environmental Subject Area	Mitigation Proposed	Timing
Chapter 6 – Landscape and Visual Impact Assessment (LVIA)	**Embedded Mitigation** • The site is not located in any designated landscape or Wild Land Area (WLA). • The site is separated from the main population centres on the eastern side of Glen Aray, and the enclosed nature of the glen gives rise to a more contained Zone of Theoretical Visibility. • Design refinement and consideration of the landscape, for example arranging turbines with respect to landform features, consideration of views of the wind farms, or ensuring an aesthetically balanced arrangement of turbines from sensitive viewpoints.	Pre-construction
Chapter 7 – Ornithology	**Embedded Mitigation** • Wherever possible, locating Wind Turbines and other infrastructure in areas where habitat types are currently of low value for Important Ornithological Features (IOFs) (i.e., conifer plantation or recent clearfell) and utilising existing forestry infrastructure; • Locating infrastructure at least 350 m from any known nest site of a Schedule 1 breeding species; • Locating Wind Turbines at least c.300 m from the Glen Etive & Glen Fyne Special Protection Area (SPA) boundary, to avoid any direct habitat loss for golden eagles, or effective habitat loss within the SPA due to displacement; and • Locating Wind Turbines at least 300 m from any known black grouse lekking location.	Pre-construction
	Embedded Mitigation • All electrical cabling between the proposed Wind Turbines and the associated infrastructure will be underground in shallow trenches which would be reinstated post-construction and, in most cases, follow the proposed access tracks. • Any ground disturbance areas around permanent infrastructure during construction will be temporary and land will be reinstated or restored before the construction period ends. The only excavation in these areas will be for cabling as noted above and otherwise may only be periodically used for side-casting of spoil until reinstatement. • To ensure all reasonable precautions are taken to avoid impacts on birds during construction and decommissioning, the Applicant will appoint a suitably qualified Ecological Clerk of Works (ECoW) prior to the commencement of construction and decommissioning and they will advise the Applicant and the Principal Contractor on all ornithological matters (with the assistance of a suitably qualified/licenced ornithologist if required). The ECoW will be required to be present on Site during the construction and decommissioning periods and will carry out monitoring of works and briefings with regards to any ornithological sensitivities on the Site to the relevant staff within the Principal Contractor and subcontractors. • A Breeding Bird Protection Plan (BBPP) will be implemented during the construction of the Development. The BBPP will detail measures to ensure legal compliance and safeguard breeding birds known to be in the area and will include species-specific guidance. The BBPP shall include pre-construction surveys and best practice measures during construction. Pre- and during-construction surveys will be undertaken to check for any new breeding bird activity in the vicinity of the construction works. The ECoW will oversee the implementation of the above measures.	Construction

Environmental Subject Area	Mitigation Proposed	Timing
	Breeding Birds Specific pre-construction surveys for lekking black grouse will be undertaken during the main black grouse lekking season (March to May, following methodology provided by Gilbert *et al.* (1998) and NatureScot (Scottish Natural Heritage (SNH) 2017) to provide an up-to-date understanding of where black grouse are lekking within 750 m of the Development. As part of the BBPP, Pre-construction surveys during the greenshank breeding season (April to July) would aim to locate any active nest sites within 500 m of construction activities.	Pre-Construction
	Breeding Birds The BBPP will consider potential disturbance to black grouse leks and nest sites and set out necessary measures to ensure that no disturbance occurs. Restrictions to construction activity would likely be within two hours of dawn during core lekking period of March to May, but the exact timing of restrictions and/or extent of any disturbance-free zone, within which any construction activity that is considered to be potentially disturbing would be prohibited in that area until the core lekking period has passed, would be agreed with NatureScot. Furthermore, to minimise the possibility of disturbance outside these times to any leks within 750 m of access tracks, a maximum speed limit of 15 mph will be enforced, and personnel will remain within vehicles wherever possible. Where possible, gates within 750 m of lek sites will remain open after first arrival, therefore avoiding the need for every subsequent entry to open and close the gate and the associated potential disturbance to the lek due to pedestrian activity. The ECoW will oversee the implementation of the above measures. The ECoW or an appropriately qualified ornithologist will monitor greenshank activity around the lochs to the east of the Site to determine whether they are likely to form a key part of any breeding pair's territory, should it be possible that any construction activity may significantly disturb breeding adults, or dependent young. If this is considered to be the case, restrictions would be placed on construction activities within up to 500 m of feeding lochs or dependent young, with the nature, extent and duration of this dependent on Site-specific conditions, and confirmed after a risk assessment is conducted by the ECoW.	Construction
	Breeding Birds The Applicant shall prepare a Biodiversity Enhancement Management Plan (BEMP) for the written agreement of the Council in consultation with NatureScot prior to the commencement of the Development. The BEMP shall specifically deliver focussed habitat enhancement to maintain or increase black grouse and greenshank numbers and shall include confirmed Management Units and detailed Management Prescriptions. The main benefits for black grouse, planned under the BEMP as per Aim 3 in the oBEMP would be: • Removal of conifer woodland and restore ground to previous mire/heath habitats suitable for breeding/feeding black grouse; • Possible small, discrete areas of native woodland planting, subject to an evaluation of ground conditions; and • Peatland restoration in open moorland close to the occasional lek site near the summit of Stùc Scardan.	Operation

Environmental Subject Area	Mitigation Proposed	Timing
	The main benefits for greenshank, planned under the BEMP as per Aim 4 in the oBEMP would be: • Removal of conifer woodland and restoration of bog/heath habitats close to feeding lochs which would provide opportunities for nesting e.g., beside rocky outcrops, remnant tree stumps, and for chick-rearing; and • Peatland restoration in open moorland close to feeding lochs near the summit of Stùc Scardan, which could provide better breeding habitat.	
Chapter 8 – Ecology	**Embedded Mitigation – Iterative Design Process** • Where possible, locating Wind Turbines and other infrastructure in areas where habitat types are currently of low conservation value (i.e., conifer plantation or recent clearfell) and utilising existing forestry infrastructure; • Where possible, a minimum 50 m buffer for any infrastructure or construction activity around all watercourses, except where a minimum number of watercourse crossings are required (see Chapter 10: Hydrology & Hydrogeology). This will minimise effects on associated habitats and protected species; • A 300 m buffer for any infrastructure from the Glen Etive & Glen Fyne SPA, designated for golden eagle, which is adjacent to the east and north of the Site (see Figure 7.2). Although primarily enforced in order to avoid effective loss of habitat through displacement of golden eagles within the SPA (see Chapter 7: Ornithology), this buffer ensures that there will be no indirect adverse effects on SPA habitats during construction or operation of the Development. • Where possible, the track length and alignment has been designed to reduce the extent of new track and number of watercourse crossings required; • Avoidance of deeper peatland (>1 m), blanket bog and wet modified bog, and potential high Groundwater Dependant Terrestrial Ecosystems (GWDTEs), for the location of turbines and other infrastructure as far as practicable; and • A degree of forest felling will be required to accommodate access track and Wind Turbine infrastructure, and as bats can utilise edge habitat such as plantation edges for foraging and commuting, this felling will create a small amount of new edge habitats for bats. Relevant NatureScot (SNH et al. 2019; updated 2021[50]) guidance recommends a minimum 50 m buffer from Wind Turbine blade tip to edge habitats should be established across the Site to safeguard bats. Buffer distances can be calculated to determine the distance between the turbine base and these edge features using the following formula provided in the guidance. In this case, a minimum set-back distance of 80 m would be used.	Pre-construction, Construction
	Embedded Mitigation – Pre-construction & Construction The assessment in this EIA Report has been undertaken on the basis that all works would be carried out in accordance with industry good practice construction measures, guidance and legislation. There would be a contractual management requirement for the successful Principal Contractor to develop and implement a comprehensive and Site-specific robust Construction Environmental Management Plan (CEMP – see outline plan in Technical Appendix 11.4) in consultation with the Scottish Environmental Protection Agency (SEPA) and the Council. This document would detail how the successful Principal Contractor would manage the	Pre-construction, Construction

Environmental Subject Area	Mitigation Proposed	Timing
	works in accordance with all commitments and mitigation detailed in the EIA Report, statutory consents and authorisations, and industry good practice and guidance for environmental management, including implementation of appropriate pollution prevention (particularly in relation to watercourses). To ensure all reasonable precautions are taken to avoid adverse effects on habitats, protected species and aquatic interests, the following measures would be employed as part of, or complimentary to the CEMP: A suitably qualified ECoW will be appointed prior to the commencement of construction (including felling as part of the Development) to advise the Applicant and the Principal Contractor on all ecological matters. The ECoW will be required to be present onsite during the construction phase and will carry out monitoring of works and briefings with regards to any ecological sensitivities on the Site to the relevant staff of the Principal Contractor and subcontractors. A Species Protection Plan (SPP) would be implemented during the construction phase (including felling as part of the Development). The SPP details measures to safeguard protected species known or likely to be in the area. The SPP includes pre-construction surveys, including bat roost checks if required, and good practice measures during construction. Pre-construction surveys will be undertaken to check for any new protected species presence in the vicinity of the construction works. Any micrositing of infrastructure will be based on a review of existing ecological data and the completion of pre-construction surveys, to take into consideration the potential for direct encroachment onto protected species features, sensitive habitats or GWDTEs, or indirect alteration of hydrological flows supporting sensitive habitats or GWDTEs. Any micrositing will also take consideration of any buffer distances on protected features identified, as detailed within the SPP. Construction work would be undertaken during daylight hours, where possible, in order to prevent disturbance to protected species. A start-up and close down period for up to an hour before and after the core working hours is proposed. This does not include the operation of plant or machinery that may cause a disturbance. If construction work is to be undertaken outside of daylight hours, lighting would be used for the works areas only and would not to be allowed to spill onto nearby protected species habitats. Quieter construction activities at this time would be undertaken to reduce disturbance. All construction lighting will be deployed in accordance with the following recommendations to reduce or remove impacts on protected species: • The use of lighting will be minimised to that required for safe site operations; • Lighting will utilise directional fittings to minimise outward light spill and glare (e.g., via the use of light hoods/cowls which direct light below the horizontal plane, preferably at an angle greater than 20° from horizontal); and • Lighting will be directed towards the centre of the Site rather than towards the boundaries. No instream works will occur between October and the end of May on any watercourse containing suitable fish spawning substrates within the vicinity of any watercourse crossing locations without further survey and assessment by the ECoW in advance of works.	

Environmental Subject Area	Mitigation Proposed	Timing
	Embedded Mitigation – Operation In line with best practice guidance on bats (SNH *et al.* 2019; updated 2021) the Development will utilise the method of reduced rotation speed whilst idling by feathering, at all turbines, to reduce collision risks to bats during the bat active period (April to October). The guidance notes that, "*The reduction in speed resulting from feathering compared with normal idling may reduce fatality rates by up to 50%*". Given the known presence of high collision risk bat species onsite, this measure will be put in place from the start of the operational period of the Development. This mitigation measure does not result in any loss of output for the Development.	Operation
	Outline Biodiversity Enhancement Management Plan (oBEMP) A suite of enhancement measures would however be implemented as part of an BEMP (see oBEMP in Appendix 8.4), consistent with the requirements of Policy 3 of National Planning Framework 4 (NPF4) for developments to "conserve, restore and enhance biodiversity", by benefiting a wide range of ecological (and ornithological) features. This would include: • Removal of conifer woodland/ scattered conifer trees and restore ground to natural mire/heath habitats; • Peatland restoration in open moorland near the summit of Stùc Scardan; • Enhancing the condition of semi-natural woodland within the Site; • Planting riparian broadleaved woodland connected to existing semi-natural woodland designated as ancient in origin; • Planting of small, discrete areas of native broadleaved/mixed woodland, subject to an evaluation of ground conditions for suitability; and • Erection of bat, red squirrel and pine marten boxes in suitable locations within the Site.	Operation
Chapter 9 – Archaeology and Cultural Heritage	**Embedded Mitigation** • The primary design consideration for physical impacts to any potential archaeological remains has been avoidance of any currently known heritage assets. In considering the siting of Wind Turbines and establishment of associated infrastructure, design measures have been put in place to avoid placing them on or near any known heritage assets (See Chapter 3: Site Selection and Design); • In relation to potential indirect impacts to designated heritage assets through a change in setting, the design process has been collaborative across all the environmental disciplines to ensure a joined up and holistic approach to minimising, and removing entirely where possible, any adverse environmental effects; • Following consultation with Historic Environment Scotland the layout of the turbines was altered to reduce the potential visibility of the Development from the key assets at Inveraray and Inveraray Castle. In summary, the turbines were moved to cluster in the northern part of the Site removing those on the south facing slope of Stùc Scardan (See Chapter 3: Site Selection and Design); and • The Site boundary has been altered to remove access tracks from running through the Inveraray Castle Designed Landscape to prevent any physical impacts or indirect impacts through traffic movement during construction and/or operation.	Pre-Construction

Environmental Subject Area	Mitigation Proposed	Timing
	Subsurface Archaeological Remains The Development has the potential to affect subsurface archaeological remains through intrusive construction activities. It is proposed to mitigate any potential effects from construction activities through the implementation of an appropriate programme of archaeological works which will permit any remains to be investigated and recorded (leading to preservation by record) which can be set out as a condition of consent. As direct impacts are limited to the footprint of the Development, no further disturbance of any potentially buried archaeological remains is anticipated. The mitigation measures will be set out in a formal Written Scheme of Investigation (WSI) submitted to West of Scotland Archaeological Service (WoSAS) for approval prior to the commencement of any archaeological works, however, it is expected that the following measures will be applied: • A final walkover prior to construction across the footprint of any proposed groundworks to make a final check for heritage assets: • Recording of any extant features e.g. any earthwork remains of the Earthwork of Unknown Provenance or post-medieval field boundaries; • In areas impacted by the construction process, a watching brief should be undertaken during construction with scope to allow for further, more intensive excavations should any significant archaeology be uncovered. • In the event that archaeological remains of the highest significance are encountered, mitigation by design through micrositing infrastructure will be applied in the first instance. • The need for, scale and scope of any additional works will be agreed with WoSAS and the conditions for their implementation will be set out within the WSI.	Construction
Chapter 10 – Hydrology and Hydrogeology	**Embedded Mitigation** Drainage measures installed prior to earthwork activities: • Cut-off/ diversion ditches; • Temporary interception bunds; • Swales; and • Retention ponds. Drainage measures for permanent or semi-permanent earthworks: • Drainage ditches; • Sumps; and • Culverts. Sediment pollution prevention: • Silt traps and silt matting; • Silt fencing; • Check damns; and	Pre-construction, Construction, Operational

Environmental Subject Area	Mitigation Proposed	Timing
	• Settlement lagoons. Chemical pollution prevention: • Safe storage methods of chemicals and oils; and • Chemical spill response measures. Technical Appendix 11.4 oCEMP forms part of the embedded development design. The oCEMP includes established and effective mitigation measures to which the Applicant will be committed to through the development consent. The oCEMP describes water management measures to control surface water run-off and drain hardstandings and other structures during the construction and operation of the Development. This will form part of a PPP to be implemented for the Development. Measures outlined in the oCEMP and PPP will be based on good construction practice outlined in the aforementioned guidance documents in EIA Report Volume 1 Section 10.2.3 and Section 10.2.4. The oCEMP and PPP are to be agreed with SEPA prior to the construction phase. A 50 m watercourse buffer zone, where possible, in conjunction with the measures set out in the oCEMP is implemented for the Development infrastructure, except watercourse crossings. It is sufficient to avoid potential effects on the hydrological and hydrogeological resource, as their effectiveness has been demonstrated on several wind farm construction sites for which ERM have provided technical advice. Although the oCEMP is a draft and will evolve to take account of consultee feedback and detailed design, there is sufficient confidence in the effectiveness of the measures set out in the oCEMP for them to be treated as part of the Development for the purposes of this assessment. Measures and procedures outlined in the oCEMP will be adopted and incorporated into a single working CEMP to be agreed with statutory consultees and the planning authority following consent by way of an appropriately worded planning condition.	
	Embedded Mitigation The following mitigation measures relating to the hydrological environment are embedded into the design and construction of the Development: • 50 m watercourse buffers for construction works, where possible, with the exception of watercourse crossings as discussed in Section 10.6.1.1; • Good practice methods and works for protection of hydrological receptors as outlined in Section 10.3.5 and elaborated upon in Technical Appendix 11.4: oCEMP; and • The requirement for access tracks crossing watercourses has been minimised, where possible, during the design stage.	Pre-construction, Construction
	Breaches in Embedded Mitigation - 50m watercourse buffer Where access tracks are within 50m of surface watercourses, a suitable buffer will be provided, as per standard mitigation procedures outlined in Technical Appendix 11.4:oCEMP. For all new track proposed within the Development, new drainage ditches will be constructed for both the construction and operational phases of the	Pre-construction, Construction

Environmental Subject Area	Mitigation Proposed	Timing
	Development to mitigate any pollution risk. Good construction practice to be utilised in the installation of these drainage ditches is detailed in Technical Appendix 11.4: oCEMP.	
	Chemical Pollution *Surface Hydrology* Buffer distances between proposed construction works and watercourses have been maximised to reduce the potential for chemical pollutants to be transferred to the water environment. A 50m buffer zone between watercourses and infrastructure (excluding watercourse crossings) has been adopted, where possible. The proposed two new bridges spanning the River Aray would need to be licensed under SEPA Controlled Activities Regulations (CAR) guidelines, detailing justification for the crossing, detailed crossing design, best practice management, etc. This license will be applied for by the Applicant's principal contractor prior to the commencements of the construction and agreed to by SEPA. These best practice methods for watercourse crossing constructions based on Construction Industry Research and Information Association (CIRIA) water pollution control guidelines and SEPA watercourse crossing guidelines are all outlined in Section 10.2.4 and further discussed in Technical Appendix 11.4: oCEMP. Continued and regular visual inspection by the ECoW will take place during construction as part of a surface water monitoring programme. Furthermore, monthly in-situ monitoring and sampling prior to construction (for 12 months) and throughout the construction will be included to the programme with the intention of safeguarding water quality during construction. If batteries are connected during the construction period, the emergency response plan will be followed, as outlined in Technical Appendix 11.4: oCEMP, in the event of an on-site battery fire. An automatic fire suppression system with a shut-off mechanism (e.g., a penstock) to prevent spread of polluted water will be in place and detailed in the site drainage plan. This system would include a valve and bunded area from which contaminated water can be pumped out and removed from the Development. Best practice embedded construction methods as outlined in Technical Appendix 11.4: oCEMP including use of impermeable membranes and bunding of the two Temporary Construction Compounds (TCC's) will safeguard water quality. Measures such as absorbent spill pads / kits and other measured highlighted within the Technical Appendix 11.4: oCEMP will effectively limit the uncontained release of chemical to minor fugitive releases. These would be minimised through best practice construction methods such as vehicle speed limits and regular vehicle and machine maintenance. Routine training practices such as staff inductions and toolbox talks will be conducted throughout the construction phase of the Development. Information regarding staff training is detailed in the Technical Appendix 11.4: oCEMP. *Groundwater and Near Surface Water, and Bedrock* Measures such as spill pads, impermeable geotextile membranes and measures described within the Technical Appendix 11.4: oCEMP will effectively limit the uncontained release of chemicals to minor fugitive releases. Best practice embedded construction measures, summarised in Technical Appendix 11.4: oCEMP will be in place to limit release of chemicals to surface water run-off, groundwater, and near-surface water.	Construction

Environmental Subject Area	Mitigation Proposed	Timing
	GWDTEs GWDTE communities located within 100m of excavations < 1 m in depth and within 250m of excavations > 1 m in depth are at risk from a pollution incident during construction. There are 12 habitats identified within these buffers that are at risk. Best practice embedded construction measures, summarised in Technical Appendix 11.4: oCEMP will be in place to limit release of chemicals to surface water run-off, groundwater, and near-surface water. *Private Water Supply (PWS)* Best practice embedded construction measures outlined in Technical Appendix 11.4: oCEMP will be in place to prevent release of chemicals to surface watercourses and waterbodies, and groundwater bodies. Good practice drainage mitigation will be installed as well as a PWS water quality monitoring program with the intention to provide potable water should potential effects be noted by monitoring results. Furthermore, should any adverse change in quantity or quality of the water be detected, an investigation into the problem and, if it is the responsibility of the Development, the cause will be addressed to remove the affect. If any additional supplies are identified in future, full details of water management measures and mitigation will be provided in a Construction and Environmental Management Plan (CEMP) for the Development. A further detailed drainage layout will be provided prior to construction after the Development has been consented	
	Erosion and Sedimentation Earthworks will be located at the borrow pit location. These areas will be visually inspected regularly by the ECoW and mitigation measures outlined in the Technical Appendix 11.4 oCEMP will be implemented. *Surface Hydrology* Where buffers are encroached by upgraded tracks, improvements to the public road, new access tracks, hardstanding, and load bearing surfaces, good practice construction measures will effectively prevent sediment entering watercourses. Measures such as check dams, silt traps, settlement lagoons and buffer strips will minimise sedimentation and erosion; further details of these measures are detailed in the oCEMP. Other Sustainable Drainage System (SuDS) measures, such as the use of settlement lagoons, swales, and interception bunds, will effectively prevent sediment entering watercourses via drainage ditches adjacent to access tracks. As such, there will be limited potential for sediment or erosion effects on watercourses in the Core Study Area, including the hydrology and water quality of on-site watercourses. These measures are further detailed in the oCEMP. The watercourse crossing over the River Aray proposed in the north-west of the Development could potentially disturb the natural sediment carried by the River Aray. This could be as a result of the crossing posing as a barrier for sediment travelling downstream, or it could cause riverbed disturbances during the construction phase and release more sediment into the water. These disturbances alongside others are outlined in good practice for river crossings guidelines laid out by SEPA. These guidelines are further detailed in the Technical	Construction

Environmental Subject Area	Mitigation Proposed	Timing
	Appendix 11.4: oCEMP and will be adhered to throughout construction to limit potential effects of construction on sedimentation. *Groundwater and Near Surface Water* Sediment also has the potential to change near surface water flow in superficial geology deposits and peaty soil characteristics by creating a physical barrier within naturally occurring drainage micropores. Sediment entering near-surface water in superficial deposits also has the potential to impact on groundwater quality within bedrock deposits / fissures. Measures described in Technical Appendix 11.4: oCEMP, such as impermeable ground membrane layers and bunded areas, will effectively prevent sediment entering sub-surface water in superficial deposits (and groundwater) and peat. *GWDTEs* Sediment potentially changing the hydrological flow characteries and quality of groundwater present at the Development has the potential to affect GWDTEs reliant on the groundwater. Measures described in Technical Appendix 11.4: oCEMP, such as impermeable ground membrane layers and bunded areas, will effectively prevent sediment entering sub-surface water in superficial deposits (and groundwater) and peat. This will mitigate the short-term effects on GWDTEs resulting from sedimentation. *PWS* The quality of some PWS within 100 m of excavations of less than 1 m depth could be affected by sediment mobilisation. The PWS for Ladyfield Farm is located 130 m west of the Development Boundary. The source for this PWS is an intake located within the western extent of the Development Boundary and draws directly from the Allt à Mhadaidh, which flows east to west through the Development. The nearest excavation < 1 m is for a proposed track upgrade 657 m south-east of the PWS source intake, and the nearest excavation > 1 m is for proposed turbine hardstanding 872 m south-east from the PWS source intake. However, there are several proposed watercourse crossings upstream of the PWS intake location meaning the PWS is hydrologically connected to the Development. The quality of this PWS could potentially be affected by sedimentation. Good practice drainage mitigation will be installed as well as a PWS water quality monitoring program with the intention to provide potable water should potential effects be noted by monitoring results. Furthermore, should any adverse change in quantity or quality of the water be detected, an investigation into the problem and, if it is the responsibility of the Development, the cause will be addressed to remove the affect. If any additional supplies are identified in future, full details of water management measures and mitigation will be provided in a CEMP for the Development. A further detailed drainage layout will be provided prior to construction after the Development has been consented.	

Environmental Subject Area	Mitigation Proposed	Timing
	Impediments to Surface Water Flow The access tracks will require 30 watercourse crossings across the Development. 20 of these will be new installations, while 10 will be upgraded on existing the existing track within the Development area. The Development has been designed, as detailed in Chapter 2 – Development Description, to minimise the number of watercourse crossings. The minimisation of the number of proposed watercourse crossings and the re-use of the existing watercourse crossing locations reduces one of the main activities that could give rise to impediment of flows. Additionally, measures described in the Technical Appendix 11.4: oCEMP, such as the use of wide bottomless-arched culverts, where appropriate, are likely to prevent impediments to flow being created. The indicative watercourse crossing design is outlined in Chapter 2 - Development Description, detailed design will be carried out at the construction phase and will be agreed with SEPA. The two new river crossings to be constructed spanning the River Aray may disrupt surface water flow and will be subject to SEPA CAR licensing. Details described in Technical Appendix 11.4: oCEMP, such as ensuring the location of the crossing is perpendicular to flow and selecting appropriate design structure to limit the impact on surface water flow, will be implemented in its construction to meet CAR guidelines as well as SEPA good practice for river crossing construction – outlined in Section 10.2.4. Felling of trees can increase surface water run-off and cause impediments to river flow through accumulation ad transfer of brash. Brash build up within watercourses has the potential to impede the passage of waterborne ecology and divert / concentrate flow to riverbanks. In the long-term, however, it is generally accepted that, the removal of plantation forestry in proximity to watercourses can improve surface water conditions due to increased growth of bankside vegetation, improved ground level lighting and reduced potential for the introduction of impediments to flow. Measures described in the Technical Appendix 11.4: oCEMP such as brash matting, not stockpiling brash and not allowing brash to block drainage ditches or enter watercourses, verified by visual inspections, further reduce the potential for this effect to occur.	Construction
	Changes in Groundwater Interflow Patterns *Groundwater and Near Surface Water* Some wind turbine base excavations may need temporary sub-surface water controls, such as physical cut-offs or de-watering. These temporarily divert flows away from the excavation, and temporarily lower the local water table and sub-surface water levels. Localised temporary changes to groundwater and near surface water interflow patterns may therefore arise. Turbine foundations and crane hardstanding also have the potential to change sub-surface water flow by creating physical barriers within naturally occurring drainage macropores in superficial deposits.	Construction

Environmental Subject Area	Mitigation Proposed	Timing
	Areas particularly at risk of changes in flow patterns are in areas of large earthworks. As deep cuttings are required in some areas due to undesirable topography to facilitate the Development, larger volumes of deposits will require to be excavated and transported. This change in topography could result in changes to flow patterns. Larger areas of earthworks cutting are located at the Borrow Pit, and these areas will be visually inspected regularly by the ECoW and mitigation measures outlined in Technical Appendix 11.4 will be implemented. The drying out of peaty soil can result from alterations to the natural drainage regime. Measures set out in Technical Appendix 11.4: oCEMP, such as the rewetting of peat through controlled irrigation techniques, are considered sufficient, and sufficiently reliable, to avoid substantial alterations to the natural drainage regime. As a result, peat is not expected to dry out, beyond what would be the case in the baseline scenario. No substantial impediments to near-surface water flow will be created as the detailed site drainage design will consider any severance of saturated areas to ensure hydrological connectivity is maintained, in accordance with SEPA / SNH (now NatureScot) 'Good practice during wind farm construction' as shown in Technical Appendix 11.4: oCEMP.	
	Mitigation of Pollutants from Contaminated Land Desk studies have not identified any areas of contaminated land within the Development and no effects are anticipated. Should an area of contaminated land be encountered during excavations, measures outlined in Section 6 of Technical Appendix 11.4: oCEMP will be implemented.	Construction
	Acidification of Watercourses Forestry good practice measures are set out in Technical Appendix 11.4: oCEMP, including specific measures for felling and for forestry activities within 100 m of natural watercourses. These measures will be implemented and maintained, and this will be carried out during the construction phase under supervision of an ECoW, whose role is described in Technical Appendix 11.4: oCEMP.	Construction
	Increase in Runoff and Flood Risk *Increase in Runoff* Measures, including SuDS measures, to attenuate run-off and intercept sediment prior to run-off entering watercourses are described as part of embedded best practice in Technical Appendix 11.4: oCEMP and form a part of the Development good construction practice. In accordance with the Forestry Commission (2019) Managing Forest operations to protect the water environment measures outlined within Section 3.7 of Technical Appendix 11.4: oCEMP, such as cut-off ditches, check dams and	Construction, Operation

Environmental Subject Area	Mitigation Proposed	Timing
	forestry drainage, will control surface water flows to ensure surface water is not rapidly transferred to natural watercourses. *Flood Risk* The design of the Development layout has incorporated a 50 m Buffer Zone, where possible, between watercourses and infrastructure, meaning any overtopping of minor watercourses is unlikely to reach infrastructure.	
	Effects on the Hydrological Function of Groundwater Dependent Habitats The embedded design measures outlined in Technical Appendix 11.4: oCEMP will also minimise the indirect effects on wetland habitats. Good practice design and construction measures outlined in Technical Appendix 11.4: oCEMP will minimise potential indirect effects of the Development on wetland habitats, including those not determined to be groundwater dependent. Prior to access track construction, site operatives will identify flush areas, depressions or zones which may concentrate water flow. These sections will be spanned with plastic pipes or drainage matting to ensure hydraulic conductivity under the road and reduce water flow over the road surface during heavy precipitation. Specifically, the following design measures will ensure that effects on wetland habitats are minimised: • A PPP is implemented to ensure good practice working methods are followed throughout construction works; • Silt traps will be deployed to trap and filter sediment-laden run-off throughout the construction phase of the Development; • Settlement lagoons will be constructed and actively managed to control water levels and ensure that any run-off is contained, especially during times of rainfall; • Turbine foundations are constructed in holes in the ground that will be de-watered, and hence water flow is typically into the foundation area. This will prevent concrete leaching into groundwater or surface water in the event of shutter collapse; • All excavations will be sufficiently dewatered before concrete pours begin and that dewatering continues while the concrete cures. However, construction good practice will be followed to ensure that fresh concrete is isolated from the dewatering system; and • If required, turbine foundations may be dewatered, temporarily lowering water levels in the superficial deposits and near-surface groundwater. The dewatering process would involve the treatment of any extracted water to remove any sediment and redistribute the water onto a vegetated surface in proximity to the excavation. This process would not involve any net loss of water from the hydrological system and would ensure that the water being treated is of the same (or similar) quality to what was extracted. Hence, there would not be an unacceptable effect on groundwater or near-surface water supplying GWDTEs.	Construction

Environmental Subject Area	Mitigation Proposed	Timing
	Effects of Water Abstraction for Concrete Batching on-site During the concrete batching process, measures such as spill pads, impermeable geotextile membranes and measures described in Technical Appendix 11.4: oCEMP will effectively limit the uncontained release of chemicals to minor fugitive releases. Good practice design and construction measures outlined in Technical Appendix 11.4: oCEMP in conjunction with limits placed on water abstraction methods from the SEPA licensing process will minimise potential effects of water abstraction on the local surface watercourse.	
	Natural Flow Pathways Whilst alterations to natural flow pathways will not be introduced during the operational phase, any changes during construction will continue through operation, as most of the infrastructure will remain in place. Alterations to natural flow pathways will be reduced through adopting good practice design and construction, as set out in the Technical Appendix 11.4: oCEMP, such as cross drainage, use of shallow drainage ditches and prevention of blockages	Operation

	Additional Mitigation
	
	Potential construction effects resulting in chemical pollution and/or erosion and sedimentation could impact the quality and/or yield of the one hydrologically connected PWS (Ladyfield PWS) of High sensitivity.
	
	These additional mitigation measures to reduce the potential impact within the PWSRA include:
	
	• Implementation of a water quality monitoring scheme measuring:
	  ○ Quality of PWS;
	  ○ Quantity of PWS;
	  ○ Continuity of PWS;
	• Investigation into the source of the problem following adverse changes to the PWS; and
	• Provision of emergency standby alternative supply following adverse changes to the PWS.
		Construction

Chapter 11 – Geology, Soils and Peat	**Embedded Mitigation** In order to reduce impact of the development, the following measures were taken at the design stage: • Peat depth surveys were undertaken across the site and peat deposits were found. The PSRA process was also used to inform the design. • Where areas of deep peat or potential for peat slide were identified, design changes were proposed and implemented to reflect the approach to avoid either deep peat or the deepest peat in proximity to turbines. Also, the track alignments were largely designed in areas of shallow peat or no peat.	Pre-construction, construction
	Best Practices	

Environmental Subject Area	Mitigation Proposed	Timing
	Best practice pre-earthworks drainage measures include: • Cut-off/ diversion ditches; • Temporary interception bunds; • Swales; and • Retention ponds. Best practice earthworks drainage measures include: • Drainage ditches; • Sumps; and • Culverts. Silt fences are to be used as perimeter controls on the site at the downslope end of earthworks or disturbed soils, and will be installed as follows: • Installed perpendicular to the gradient of the slope; • Construct a trench on the up-gradient side; • Install stakes on the down-gradient side; and • Position with a curve to the end of the fence in the up-gradient direction to help capture surface run-off Best practice guidance on the prevention of spillages of chemical outlines the following measures: • Areas where transfer and handling of chemicals is to occur should have impermeable surface; • Drainage systems onsite should be designed to enable the containment of spillages and appropriate disposal and treatment; • Emergency procedures are implemented for a spillage incident and leak detection measures (if appropriate); • Regular maintenance and inspection of chemical storage facilities to be conducted (may be carried out by onsite ECoW); and • Provision and training in the use of spill kits, as outlined below. Concrete, cement and grout mixing and washing areas should: • Be sited in an impermeable hardstanding or geotextile within a designated area; • Be sited at least 10 m from any watercourse or surface water drain, rock outcrop or sinkhole; • Install settlement and re-circulation systems for water re-use in the batching process to minimise water use, treatment requirements and risk of pollution; • Designated and contained washing areas for batching plant and vehicles; and • Collect contaminated wash waters which cannot be reused and discharge to foul sewer or tanker off-site. Contaminated water should never be released to the water environment. Culverts will incorporate the following criteria: • Culverts will be well bedded to avoid settlement and protected by an adequate cover of road material;	

Environmental Subject Area	Mitigation Proposed	Timing
	• The substrate and side/ head walls will be reinforced to prevent erosion; • The culverts will be designed such that it does not cause a barrier to movement of fish or other aquatic fauna; • Culvert floors will have the same gradient (not exceeding a slope of 3 %) and level, and carry similar bed material and flow, as the original stream; • There shall be no hydraulic drop at the culvert inlet or outlet; • The width of the culvert will be greater than the active channel width of the watercourse; • The culvert must not exacerbate or create flooding; • Culverts will be used to conduct water under the wind farm tracks; • Any fences or screens fitted on the inlet or outlet of the culvert will be designed to allow at least 230 mm of space between the bars of the screen of fence, up to the high-water level; • A natural stone headwall will be provided upstream and downstream of culverts to protect the road embankment. Further protection will be provided to the banks using soft engineering techniques as much as possible; and • Where there is risk of bed erosion upstream or downstream of culverts, natural stone rip-rap will be provided. The following mitigation measures will be implemented to control the movement of dust within the Site: • Excavation and earthworks areas will be stripped as required to minimise exposed areas; • During excavation works, drop heights from buckets will be minimised to control the fall of materials reducing dust escape; • Completed earthworks and other exposed areas will be covered with topsoil and re-vegetated as soon as it is practical to stabilise surfaces; • During stockpiling of loose materials, stockpiles shall exist for the shortest possible time; • Material stockpiles will be low mounds without steep sides or sharp changes in shape; • Material stockpiles will be located away from the site boundary, sensitive receptors, watercourses and surface drains; • Material stockpiles will be sited to account for the predominant wind direction and the location of sensitive receptors; • Water bowsers will be available on site and utilised for dust suppression during roadworks/ vehicle movements when and where required; • Daily visual inspections will be undertaken to assess need for use of water bowsers, with increased frequency when activities with high potential to generate dust are carried out during prolonged dry or windy conditions; • Shielding of dust-generating activities; • Use of enclosed chutes, conveyors and covered skips; • Covering vehicles carrying dry spoil and other wastes to prevent escape of materials; • Cutting, grinding and sawing equipment will only be used in conjunction with suitable dust suppression techniques; and	

Environmental Subject Area	Mitigation Proposed	Timing
	• A wheel washing system will be sited close to the site entrance to avoid getting dust on the public road.	
	Peat Slide Mitigation Measures to be adopted: • Ground investigations prior to detailed design; • Identification of areas sensitive to changes in drainage regime prior to detailed design; • Update the Peat Slide Risk Assessment (PSRA) as necessary following detailed ground investigations; • Development of a drainage strategy that will not create areas of concentrated flow and will not affect the current peatland hydrology, particularly in areas where a medium or high peat slide risk has been identified; • Design of a Development drainage system for tracks and hardstanding that will require minimal ongoing maintenance during the operation of the windfarm; • Inspection and maintenance of the drainage systems during construction and operation; • Identification of suitable areas for stockpiling material during construction prior to commencement of works; and • Consideration of specific construction methods appropriate for infrastructure in peatland (i.e. geogrids) as part of design development.	Pre-Construction, Construction
	Peat Disturbance Infrastructure associated with turbines which encroaches deep peat will be micro-sited (if possible) outside of these areas in order to reduce the overall effect on peat disturbance, stability and loss of soils. Intrusive site investigations will be undertaken at all turbine locations and other infrastructure prior to construction and at the borrow pit, if required, to assess suitability. Slope stability monitoring will occur during pre-construction and construction phases of work, including for both peat stability and non-peat related stability. The details of peat disturbance through excavations and subsequent re-use methods are included in Technical Appendix 11.2: oPMP. Prior to the commencement of construction a detailed PMP shall be prepared and implemented throughout construction.	Pre-construction, Construction
	Peat loss and Soil Compaction Avoiding construction on peat deposits. Minimising the loading of soils. Reuse of peat that is removed from in situ conditions to other areas within the development.	Pre-construction, Construction
	Borrow Pit	Post-construction

Environmental Subject Area	Mitigation Proposed	Timing
	The borrow pit should be suitably re-instated with topsoil and any available peat, peaty soils and turves to re-establish hydrological and ecological conditions and reduce any potential visual impacts. There is a potential for till or sands and gravels to be available for reinstatement purposes. The reinstated peat/soil surface would be profiled to allow drainage and the re-introduction of appropriate vegetation cover would tie into existing topography. The upper part of the quarry face would remain exposed and would be allowed to become weathered. It is envisaged that this face would acquire an appearance similar to that of other natural rock exposures in the locality. The reinstated profile will be of varying thicknesses above the base of the borrow pit and will be gently sloping from the track edge to the quarry face, generally with thicknesses representative to that of the peat and soils initially stripped from borrow pits areas.	
Chapter 12 – Noise	**Embedded Mitigation** Operational noise was considered in the design of the turbine layout. Each layout iteration was modelled to determine its noise impact, and the effects on the energy output of the Development on any noise mitigation measured that may be required. Through this iterative process, the layout design was optimised to ensure that the Development could operate efficiently within appropriate noise limits.	Pre-construction
	Construction and Decommissioning Noise The good practice measures detailed below will be implemented to manage the impacts of noise during construction operations, and will be required of all contractors: • The Applicant shall prepare a site-specific NMP to manage noise during the construction and decommissioning phases of the Development; • Construction operations shall be limited to times agreed with the Local Council via planning conditions; • Deliveries of turbine components, plant and materials by HGV to Site shall only take place within times agreed with the Council; • The site contractors shall be required to employ the best practicable means of reducing noise emissions from plant, machinery, and construction activities, as advocated in BS 5228-1:2009; • Where practicable, the work programme will be phased, which would help to reduce the combined impacts arising from several noisy operations; • Where necessary and practicable, noise from fixed plant and equipment will be contained within suitable acoustic enclosures or behind acoustic screens; • All sub-contractors appointed by the main contractor will be formally and legally obliged, and required through contract, to comply with all environmental noise conditions; • Where practicable, night-time working will not be carried out. Local residents shall be notified in advance of any night-time construction activities likely to generate significant noise levels, e.g., abnormal load movement; and	Construction and Decommissioning

Environmental Subject Area	Mitigation Proposed	Timing
	• Any plant and equipment normally required for operation at night (23:00 - 07:00), e.g. generators or dewatering pumps, shall be silenced or suitably shielded to ensure that the night-time lower threshold of 45 dB, $L_{Aeq,night}$ shall not be exceeded at the nearest noise-sensitive receptors. • Rock extraction from borrow pits by means of blasting operations is anticipated, and a Blast Management Plan will be prepared by the Contractor in advance of any blasting operations. With specific regards to the southern access bridge replacement works; the following measures should be implemented to reduce the effects of construction noise: • Heavy machinery and loud plant would be fitted with silencers/attenuators where possible to reduce noise as far as reasonably practicable; • Nearest resident will be notified in advance of expected loud construction activity and duration; • Where possible, operation of noisy machinery / loud activity should be planned in phases and limited to notified hours of the day; • The site contractors shall be required to employ the best practicable means of reducing vibration from plant, machinery, and construction activities, as advocated in BS 5228-2:2009; and • Construction noise & vibration monitoring will be undertaken at the façade of the nearest NSR (Linnieghluttain) during the southern junction and bridge replacement works, the monitoring equipment should measure $L_{Aeq,1hour}$ and Peak Particle Velocity (PPV) in accordance with BS 5228-1&2. Where measured noise levels exceed the threshold value of 65 dB(A) or vibration levels exceed 10 mm/s PPV, respective construction activity should be reviewed and mitigation measures implemented in the construction activity should be improved where necessary as part of the CEMP.	
Chapter 13 – Traffic and Transport	**Construction Transport Management Plan** The measures outlined below will form part of the full Construction Traffic Management Plan (CTMP) which would be agreed in consultation with Transport Scotland and the Council and finalised post consent: • As far as reasonably possible, deliveries should be scheduled outside of school opening and closing times; • Drivers of all delivery vehicles to be made aware during induction of the presence of schools and other amenities within these settlements; • Drivers to be reminded of the presence of 20mph temporary speed restrictions on the main roads outside of these schools and that a strict adherence to these speed limits is expected of all wind farm personnel; • Delivery times will be scheduled to ensure that deliveries do not arrive in a convoy; • Timing of the deliveries will be outlined within the CTMP to ensure construction vehicles avoid potentially congested networks at peak hours; • Communications with local communities should be undertaken for planned activities such as turbine deliveries and concrete delivery days (if onsite batching is not possible). • Drivers of all delivery vehicles will be made aware of the approved route to the Site and any restrictions. Drivers of Heavy Goods Vehicles (HGVs) and other vehicles will be made aware that only the approved route is to be used and that access from non-approved routes is prohibited; • Prior to the commencement of construction, the Principal Contractor will install temporary construction phase signage on the approved route to Site to warn people of construction activities and associated construction	Construction

Environmental Subject Area	Mitigation Proposed	Timing
	vehicles. Pedestrian and road user safety will be enhanced via the installation of signage and the maintenance of sight lines; • The Principal Contractor will develop a logistics plan highlighting the access point for the Proposed Development, loading bay, pedestrian / vehicular segregation, welfare, storage, security and material handling that would be enforced following full Development Area establishment; • To ensure that deliveries do not arrive in a convoy, the construction material 'lay down' areas will allow for a staggered delivery schedule throughout the day, avoiding peak and unsociable hours (i.e., before 06:00 and after 22:00); • Under no circumstances will HGVs be allowed to lay-up in surrounding roads. All personnel in the team will be in contact with each other and with Site management, who in turn will have mobile and telephone contact with the subcontractors; • The Principal Contractor would liaise with other developers and relevant stakeholders to ensure that potentially significant impacts due to cumulative effects are avoided; and • Roads will be maintained in a clean and safe condition. A wheel washing facility would be installed on-site during the construction period reduce mud and debris being deposited onto the local road network.	
Chapter 14 - Forestry	**Restocking** Restocking would be carried out within the Site as per the Ladyfield Renewable Energy Park Long-Term Forest Plan (see Chapter 14: Forestry) to current standard practice, the forest manager's internal guidance and practices and in accordance with the guidelines contained in the United Kingdom Forest Standards (UKFS) and United Kingdom Woodland Assurance Standard (UKWAS) as a minimum, where applicable. The methodology would vary depending on the type of restocking being carried out. The following information is provided for guidance as to the restocking methodology which may be adopted. On commercial conifer areas the methodology would normally include: • Site preparation by machine cultivation and drainage; • Manual planting; • Subsequent follow-up establishment operations such as the replacement of failures, weeding and protection measures until the crops are satisfactorily established; and • Replanting would be carried out with the conifer species identified in the restocking plan at the minimum density of 2,500 trees per ha. Restocking within the broadleaf woodland areas would be carried out to the same specification with the following changes: • A lower planting density of 1,600 trees per ha; and The principal species would be mixed native broadleaves including, for example, downy and silver birch with small components of other species as appropriate to site such as oak, rowan, hazel, gean, grey willow, goat willow, alder and woody shrubs	Construction/Post-Construction

Environmental Subject Area	Mitigation Proposed	Timing
	Compensatory Planting As a result of the construction of the Development, there would be a net loss of woodland area. The area of stocked woodland in the FSA would decrease by 48.7 ha. In order to comply with the criteria of the Scottish Government's Control of Woodland Removal Policy, compensation planting would be required. The Applicant is committed to providing appropriate compensatory planting. The extent, location and composition of such planting to be agreed with SF, taking into account any revision to the felling and restocking plans prior to the commencement of construction of the proposed development.	Post-Construction
	Waste Management A hierarchy of uses for forestry materials is proposed, derived from the waste hierarchy contained within the Regulations, summarised as follows: • Prevention via the production of timber products and associated materials for use in timber and other markets; • The re-use of materials on-site for a valid purpose, where such a use exists e.g. track construction including floating tracks; • There is no valid re-cycling use for forestry residues; • Other recovery via collection and use as biomass for energy recovery or other markets, where not included above; and • Where no valid on-site or off-site use can be found for the material, disposal would be in a way that is considered to deliver the best overall environmental outcome. Where no valid on-site or off-site use, or other disposal method can be found for the material, it should be regarded as waste and handled accordingly. Disposal of timber residues as waste in or on land requires a landfill permit or a waste exemption licence and should be considered the option of last resort.	Construction
Chapter 15 – Land Use, Socio-Economics, Tourism and Recreation	**Embedded Mitigation** A critical design consideration has been the reduction in number and height of turbines and their locations. tourism receptors were considered a part of the iterative design process, particularly in respect of visual amenity effects of tourist features such as: • Removing turbines from the southern portion of the Site to reduce the visibility from the sensitive locations of Inveraray Castle, Dun na Cuaiche, Loch Fyne and the settlement of Inveraray which are of particular importance in cultural heritage terms; • Minimising the visibility of turbines from key views from the above listed locations, as well as from Loch Awe to the north; and • Locating turbines c.300 m from the Glen Etive & Glen Fyne SPA.	Pre-construction, Construction

Environmental Subject Area	Mitigation Proposed	Timing
Chapter 16 – Climate Change and Carbon Balance	**Embedded Mitigation** The design choices made as a consequence of the key constraints are considered to be mitigation which is 'embedded' in the design; the following are most relevant for the Climate Change Impact Assessment (CCIA): • Development infrastructure is built to withstand strong windspeeds and to harness energy; • Turbine spacing is sufficient to reduce turbulence effects on turbines downwind; • The turbines are located to maximise energy generation while minimising environmental impacts; • The Development design aims to minimise environmental impacts e.g., through use of existing tracks as far as possible; • Turbines, and associated infrastructure, have generally been sited in areas of peat with depths less than 1 metre (m) to minimise peat disturbance; • The area of felling required was reduced as much as practicable, although any felled forestry will be restored through equivalent habitat enhancements, for example peatland restoration, elsewhere in the vicinity of the Site; • Implementation of a CEMP and PMP during construction to minimise environmental impacts and peat disturbance; and • Buffers from watercourses incorporated in layout design, protecting water quality and also protecting Development infrastructure from flooding.	Pre-construction
Chapter 17 – Other Issues	**Shadow Flicker** Control at Source is the preferable method in the industry for mitigating shadow flicker and will be adopted by the Development. This involves shutting the turbine down at times that flicker is likely to occur. These times can be pre-calculated and programmed into the shutdown calendar of the Development's Supervisory Control and Data Acquisition (SCADA) system which is the central computerised monitoring system, although this does not take account of weather conditions occurring at specific times, resulting in excessive shutdowns. Photocells will be installed that determine whether ambient light levels are sufficient for distinct shadows (and therefore shadow flicker) to be generated to prevent unnecessary shutdowns. Alternatively, a shadow flicker protection system will be incorporated into the SCADA system. This calculates the locations of shadows in real time, determines whether these coincide with the pre-programmed locations and takes into account ambient lighting before triggering shutdowns. These systems provide greater flexibility than shutdown calendars as it allows for new locations to be programmed. • In the event a shadow flicker complaint is received by the site operator or the Council, and an appropriate investigation confirms the occurrence is a result of the Proposed Development, then measures such as those outlined above will be used to prevent re-occurrence and protect residential amenity.	Pre-construction, Construction
	Aviation To mitigate any effects on military low flying, the Ministry of Defence (MOD) response states that "the MOD would request that the development be fitted with MOD accredited aviation safety lighting in accordance with the requirements of the Air Navigation Order 2016."	Pre-construction, Construction

Environmental Subject Area	Mitigation Proposed	Timing
	This lighting will be fitted to the turbines, with the final lighting arrangement agreed with the MOD pre-construction.	
	Telecommunications and Utilities Other below ground infrastructure, such as utilities, could be affected during construction; however, implementation of best practice would ensure that these are not adversely affected during construction or operation. Scottish Water did not raise concerns to the Development via their Scoping Opinion.	Pre-construction, Construction